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10/593,882	09/21/2006	Maxim B. Belotserkovsky	PU040085	5470

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EXAMINER

GHOWRWAL, OMAR J

ART UNIT	PAPER NUMBER
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2416

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08/11/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/593,882	Applicant(s) BELOTSEKOVSKY, MAXIM B.	
	Examiner OMAR GHORWAL	Art Unit 2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see pages 4-6 of Applicant's Response, filed 5/15/09, with respect to the rejection(s) of claim(s) 1-16 under U.S.C. 102 and U.S.C. 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the current set of claims. Additionally, the rejection of claims 1-4 under U.S.C. 101 is upheld.

Claim Objections

2. Claim 7 is objected to because of the following informalities: "the apparatus" lacks proper antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim(s) 1-4 is/are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to particular machine, or (2) transform underlying subject matter (such as an article or material) to a different state or thing. See page 10 of *In Re Bilski* 88 USPQ2d 1385. The instant claims are neither positively tied to a particular machine that accomplishes the claimed method steps nor transform underlying subject matter, and therefore do not qualify as a

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statutory process. The claimed method including steps of actions within a receiver is broad enough that the claim could be completely performed mentally, verbally or without a machine nor is any transformation apparent. For example even though the preamble of the independent claims 1 and 5 discloses a method for use in a receiver, the specification at para. 0031, page 10, teaches that a receiver can be implemented in software per se. (i.e. not a device/apparatus). The Examiner agrees that the claim is tied to a receiver, but the problem is that the receiver may not be a physical device, as it may be implemented in software.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1, 4-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2002/0067778 A1 to *Ahn* in view of U.S. Patent No. 5,490,176 to *Peltier*.

As to **claim 1**, *Ahn* discloses a method for use in a receiver, the method comprising:

processing a received signal with a phase-locked loop (PLL) (fig. 5, para. 0042, para. 0067, processing received signal 11, and PLL 105);

generating a carrier frequency offset estimate as a function of a phase error signal of the PLL (fig. 5, para. 0042, obtaining a phase error, and extracting a polarity of the phase error and extracting a corresponding frequency offset by making use of polarity of the phase error);

and comparing the frequency offset estimate to a closed loop value of the PLL (fig. 5, item 104-3, PLL PB_Data and oscillator with offset frequency values are inputted into frequency acquisition element).

Ahn does expressly disclose *detecting a false lock condition* as a function of comparing the frequency offset estimate to a closed loop value of the PLL.

Peltier discloses a false lock is detected when the phase offset changes sign, (abstract, col. 5, lines 10-30, claim 1), i.e. an offset signal is compared to a previous offset value.

Ahn and Peltier are analogous art because they are from the same field of endeavor regarding loops.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the false lock detection as taught by Peltier into the invention of Ahn. The suggestion/motivation would have been to detect false-locking of a reference signal (Peltier, col. 1, lines 5-10).

As to claim 4, *Ahn and Peltier* further discloses the method of claim 1, further comprising the step of updating the PLL with the carrier frequency offset estimate (Ahn, fig. 5, para. 0042, generating digital type sine and cosine waves according to the

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extracted frequency offset, these waves being part of the PLL, hence it is updated). In addition, the same suggestion/motivation of claim 1 applies.

As to **claim 5**, *Ahn* discloses a receiver (fig. 5) comprising:

a carrier tracking loop (CTL) for processing a received signal (para. 0096, specifically, two PLLs are provided in the carrier restoration section 100. For example, the carrier restoration section 100 is composed of the PLL section 104 for frequency acquisition for acquiring the frequency offset and the PLL section 105 for phase tracking for tracking the residual phase jitter);

and a processor for estimating a carrier frequency offset as a function of a phase error signal of the CTL (fig. 5, para. 0096-0097, at this time the phase/frequency detector 101 is commonly used by the PLL section 104 for frequency acquisition and the PLL section 105 for phase tracking. Also, the phase/frequency detector 101 extracts the polarity by obtaining the phase error, and then expresses the phase error by the polarity, para. 0042, extracting a corresponding frequency offset by making use of polarity of the phase error);

wherein the processor compares the frequency offset estimate to a closed loop value of the CTL (fig. 5, item 104-3, PLL PB_Data and oscillator with offset frequency values are inputted into frequency acquisition element).

Ahn does expressly disclose wherein the processor *detects a false lock condition* as a function of comparing the frequency offset estimate to a closed loop value of the CTL.

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Peltier discloses a false lock is detected when the phase offset changes sign, (abstract, col. 5, lines 10-30, claim 1), i.e. an offset signal is compared to a previous offset value.

Ahn and Peltier are analogous art because they are from the same field of endeavor regarding loops.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the false lock detection as taught by *Peltier* into the invention of *Ahn*. The suggestion/motivation would have been to detect false-locking of a reference signal (*Peltier*, col. 1, lines 5-10).

6. **Claims 2-3, 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2002/0067778 A1 to *Ahn* in view of U.S. Patent No. 5,490,176 to *Peltier* and in further view of "A Digital Transmission System Using Quaternary Partial Response CPM Principle Structure and Measurement Results" to *Matzner et al.* ("*Matzner*").

As to claim 2, *Ahn and Peltier* does not expressly disclose the method of claim 1, wherein the processing step includes the step of setting the PLL in an open loop mode of operation.

Matzner discloses on page 734, the behavior of the closed loop becomes unpredictable and a frequency offset will never be compensated, therefore a different approach is needed which uses an open-loop.

Ahn, Peltier, and Matzner are analogous art because they are from the same field of endeavor regarding loops.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the open-loop as taught by Matzner into the invention of Ahn and Peltier. The suggestion/motivation would have been to compensate for unpredictable behavior (Matzner, page 734).

As to claim 3, *Ahn and Peltier* do not expressly disclose the method of claim 1, wherein the generating step includes the steps of:

- determining a rollover count value for the phase error signal;
- determining a symbol count value of the received signal;
- and generating the carrier frequency offset estimate from the determined rollover count value and determined symbol count value.

Matzner discloses fig. 3, “wrap around” from max to min of phase error, page 734, “six symbols”, which is a value pertaining to received signal, also, frequency offset is based on degrees per symbol, i.e. one symbol is also a symbol count value, page 734, fig. 3, “six symbols” and frequency offset changes from 2 degrees/symbol to 30 degrees/symbol, also the gradient (difference between phase error estimates, i.e. “wrap around”, and since these are based on degrees per one symbol, the symbol count is also used) of the saw-tooth curve in fig. 3 is proportional to frequency offset, and this is used to estimate phase difference per symbol, i.e. frequency offset).

Ahn, Peltier, and Matzner are analogous art because they are from the same field of endeavor regarding loops.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the various values of signals as taught by Matzner into the

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invention of Ahn and Peltier. The suggestion/motivation would have been to compensate for unpredictable behavior (Matzner, page 734).

As to claim 6, *Ahn* and *Peltier* do not expressly disclose the receiver of claim 5, wherein the CTL includes a rollover counter and a symbol counter accessible by the processor for use in estimating the carrier frequency offset.

Matzner discloses fig. 3, “wrap around” from max to min of phase error is a counted value, page 734, “six symbols”, which is a counted value pertaining to received signal, also, frequency offset is based on degrees per symbol, i.e. one symbol is also a symbol counted value, page 734, fig. 3, “six symbols” and frequency offset changes from 2 degrees/symbol to 30 degrees/symbol, also the gradient (difference between phase error estimates, i.e. “wrap around”, and since these are based on degrees per one symbol, the symbol count is also used) of the saw-tooth curve in fig. 3 is proportional to frequency offset, and this is used to estimate phase difference per symbol, i.e. frequency offset).

Ahn, *Peltier*, and *Matzner* are analogous art because they are from the same field of endeavor regarding loops.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the various values of signals as taught by Matzner into the invention of Ahn and Peltier. The suggestion/motivation would have been to compensate for unpredictable behavior (Matzner, page 734).

7. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Publication No. 2002/0067778 A1 to *Ahn* in view of U.S. Patent No. 5,490,176 to *Peltier*

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and in further view of U.S. Publication No. 2002/0122511A1 to *Kwentus et al.* ("*Kwentus*").

As to claim 7, *Ahn and Peltier* do not expressly disclose the apparatus of claim 5, wherein the receiver is a set-top box.

Kwentus discloses a satellite receiver in a set-top box that contains tracking loops (fig. 1, para. 0017, 0028).

Ahn, Peltier and Kwentus are analogous art because they are from the same field of endeavor regarding tracking loops.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to incorporate the set-top box receiver as taught by *Kwentus* into the invention of *Ahn and Peltier*. The suggestion/motivation would have been to recover modulated signals in a wireless communications system (*Kwentus*, para. 0003).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OMAR GHOWRWAL whose telephone number is (571)270-5691. The examiner can normally be reached on Monday-Thursday, 8:00am-5:00pm est..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derrick Ferris can be reached on (571)272-3123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/O. G./

Examiner, Art Unit 2416

/Derrick W Ferris/

Supervisory Patent Examiner, Art Unit 2416